

## **REMARKS/ARGUMENTS**

Claims 22-38 remain pending in the present application, claims 1-21 having previously been withdrawn from consideration as being non-elected in response to an election/restriction requirement. To expedite prosecution of the present application, non-elected claims 1-21 have been cancelled herein, without prejudice to reassert those claims in further continuing application(s) filed during the pendency of the present application.

### **Affirmation of Election/Restriction Requirement**

Applicant hereby affirms his previous provisional election, with traverse, of Group III claims 22-38, which define a solid polymer fuel cell system, for prosecution on the merits of the present application. Applicant continues to reserve the right to pursue non-elected Group I claims 1-14, which are drawn to method of humidifying a fluid stream using a membrane exchange apparatus (classified in class 95, subclass 52), and Group II claims 15-21, which are drawn to method for humidifying a reactant gas supply stream for a solid polymer fuel cell (classified in class 429, subclass 13), in separate continuing application(s) filed during the pendency of the present application. Applicant further reserves the right to request, upon completion of prosecution on the merits of elected claims 22-38, reconsideration of the withdrawal of claims 1-21 from the present application, should the basis of their traversal of the election/restriction requirement be established, namely, that methods of humidifying a fluid stream using a membrane exchange apparatus of claims 1-14 and that methods of humidifying a reactant gas supply stream for a solid polymer fuel cell of claims 15-21 are sufficiently related in technical subject matter to solid polymer fuel cell system claims 22-38 that all of the claims could and should be examined together.

### **Drawing Objections**

As to the drawing objections set forth in the January 15, 2004 Office Action, FIGs. 1-3 have been revised in accordance with the Notice of Draftsperson's Drawing Review that accompanied the Office Action. Revised formal drawing are included with this submission, as well as a marked-up set of drawings showing the revisions.

### **Specification Objections**

The title of the application has been amended as suggested in the January 15, 2004 Office Action. Applicant submits, however, that the originally entitled application is directed to membrane exchange humidifiers generally, and not just to membrane exchange humidifiers for fuel cells. As a consequence of the election/restriction requirement, claims 1-21, which define membrane exchange humidifiers without regard to their ultimate implementation, were withdrawn from consideration, without prejudice to reassert those claims in further continuing application(s) filed during the pendency of the present application. The applicant's adoption of the suggested title "Membrane Exchange Humidifier For A Fuel Cell" should in no way be construed as a disclaimer or other narrowing of claims that define membrane exchange humidifiers beside those implemented in conjunction with fuel cells.

### **Anticipation Rejection of Claim 38 in view of Voss**

In the January 15, 2004 Office Action, claim 38 was rejected under 35 U.S.C. §102 as being anticipated by Voss et al. U.S. Patent No. 6,106,964 ("Voss"). Applicant's claim 38 recites a frame unit "comprising seals disposed between said membrane and the frame portion" in which "at least one of said seals

consists essentially of a bond formed between said membrane and said upper and lower frames...”.

Voss does not, and cannot, anticipate claim 38 because Voss does not disclose or suggest “seals consisting essentially of a bond”, as recited in claim 38 of the present application. Voss describes compression mechanisms that effect sealing, rather than the adhesive- or melt-type bonding between a membrane and an upper and a lower frame recited in claim 38 (*see also* paragraph 0038, first sentence, of U.S. Patent Application Publication No. 2001/0046616, which is the published version of the present application). . Absent any disclosure or suggestion of ***bonding*** between a membrane and upper and lower frames, Voss cannot anticipate claim 38 under 35 U.S.C. §102(e).

#### **Obviousness Rejections of Claims 22-37 Based on Voss In View of Debe**

Claims 22-37 were rejected under 35 U.S.C. §103(a) for obviousness in view of the combination of Voss with Debe U.S. Patent No. 5,910,378 (“Debe”) . Neither of Voss and Debe, either alone or in combination, discloses or suggests the use of a “membrane comprising a microporous polymer” that would be suitable for use as a membrane exchange humidifies for a fuel cell.

Voss describes a membrane that is semipermeable (that is, selective to water). Voss specifically states:

Preferably the membrane is impermeable to the reactant, and more preferably is substantially gas impermeable. This prevents reactant portions of the supply and exhaust streams from intermixing. Suitable membrane materials include cellophane and perfluorosulfonic acid membranes such as NAFION<sup>®</sup> perfluorosulfonic acid membrane.

Voss, column 5, lines 47-52.

Voss further discloses cellophane and perfluorosulfonic acid membranes “which allow the passage of water vapor but are substantially impermeable to oxygen and hydrogen.” (Voss, column 9, lines 53-56). Applicant’s claim 22, on the other hand, recites a membrane that is substantially permeable to reactant gas when dry.

Debe describes a backing layer that allows the passage of gases. Debe states that “the backing layers as described herein have ... high gas permeability...”. Debe, column 3, lines 29-30. Applicant's membrane, on the other hand, when wet (that is, during normal fuel cell operation), fluidly *separates* the reactant gases while allowing the passage of water.

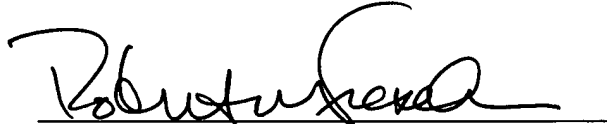
Since Voss and Debe, either alone or in combination, do not disclose or suggest all of the limitations in the applicant's claims 22-37, those claims cannot be rendered unpatentable for obviousness in view of those references.

\* \* \* \* \*

In view of the foregoing remarks, applicant submits that claims 22-38 are allowable. The Examiner is invited to telephone the applicant’s undersigned attorney at (312) 775-8123 if any unresolved matters remain.

Please charge any fees incurred in connection with this submission to  
Deposit Account No. 13-0017.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Robert W. Fieseler", written over a horizontal line.

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Markedup Version showing  
revisions to drawings

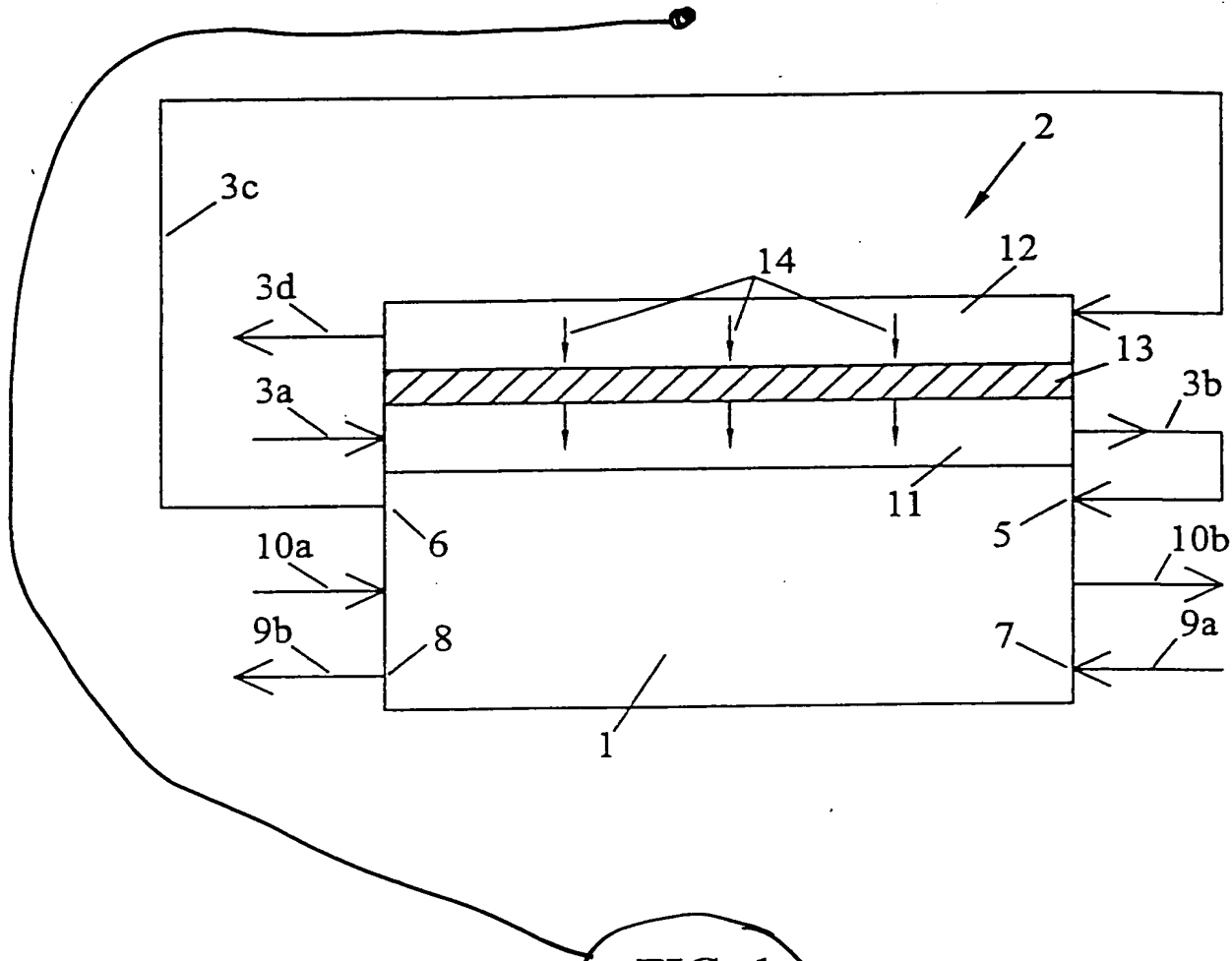


FIG. 1

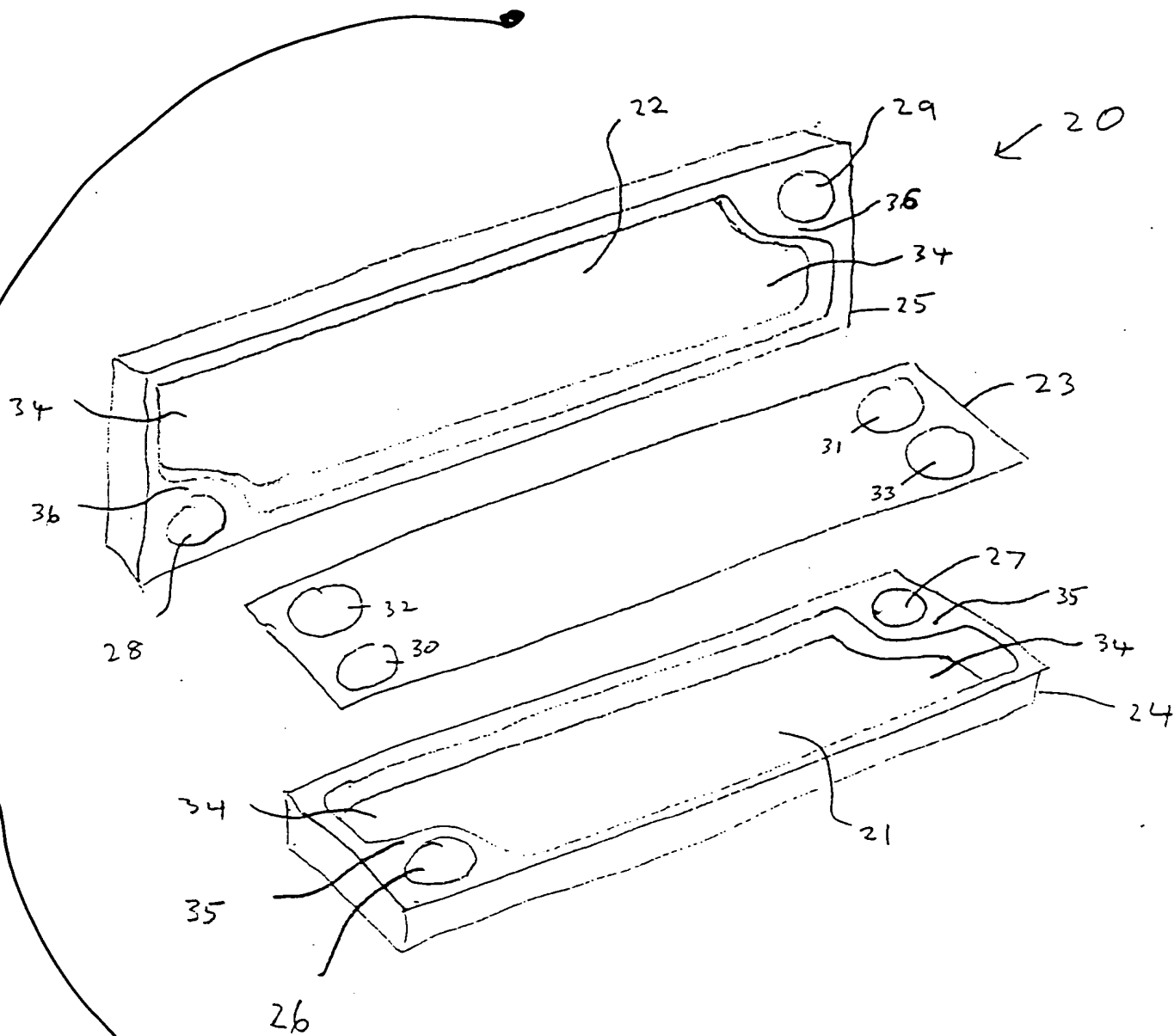


FIG. 2

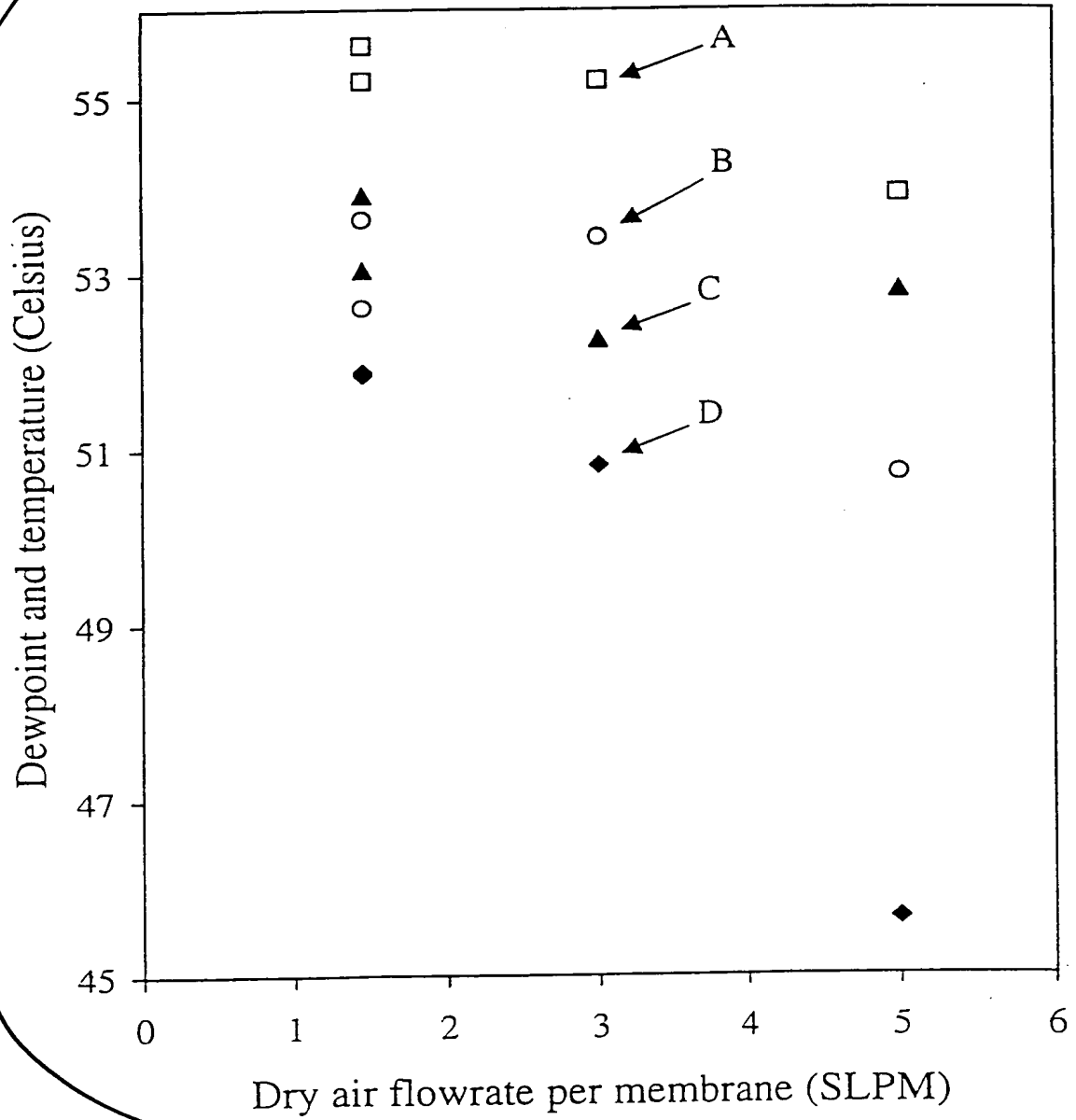
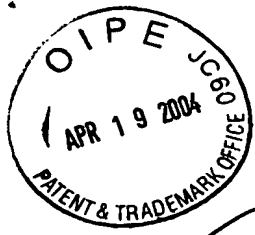


FIG. 3